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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,057	08/15/2001	Thomas Lechner	282847US8X	1174

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EXAMINER	
WOZNIAK, JAMES S	
ART UNIT	**PAPER NUMBER**
2626	

NOTIFICATION DATE	DELIVERY MODE
06/07/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/930,057	LECHNER, THOMAS	
	Examiner	Art Unit	
	James S. Wozniak	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-15 and 17-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-15 and 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the office action from 12/11/2006, the applicant has submitted an amendment, filed 3/12/2007, amending claims 1 and 11, while arguing to traverse the art rejection based on the limitation regarding the creation of a sound table in response to a selection of a sound *(Amendment, Page 10)*. Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.

Response to Arguments

2. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

With respect to independent **claims 1 and 11**, the applicant argues that neither Morishima *(EP 0795845)* nor Katoh et al *(U.S. Patent: 4,719,833)* describes calculating a sound table in response to a selection of a sound, as is recited on Page 10 of the amendment. In response, the examiner notes that it is the combination of the teachings of Morishima and Katoh that discloses the aforementioned claim limitation.

Morishima recites a mobile system that is capable of generating selected musical sounds *(See Prior OA, Pages 2-3; and Col. 4, Lines 27-47; and Col. 7, Lines 45-56)*. As is pointed out by the applicant *(Amendment, Page 10)* and noted in the prior Office Action *(Page 10)*,

Morishima fails to describe the output of a selected musical sound in the form of a waveform sound table, wherein the waveform sound table includes additional samples between adjacent samples that are the same for each octave but decrease with ascending octaves. Katoh, however, discloses a method/system for creating a waveform sound table responsive to a musical note selection *(calculation of a musical sound waveform in response to a selected note, Col. 13, Line 54- Col. 15, Line 20; and Fig. 4)*, wherein additional samples are added through interpolation for selected lower pitch octaves and the waveform samples are skipped for selected higher pitch octaves (i.e., sample addition/subtraction performed only for an octave shift) *(Col. 2, Lines 3-6; Col. 13, Line 54- Col. 15, Line 20; and Fig. 10)*.

Thus, since Morishima discloses a mobile device capable of generating selected musical sounds and Katoh discloses waveform sound table generation through sample interpolation/skipping responsive to a selected musical note for the benefit of easily generating a note range octave shift *(See Prior OA, Page 4)*, Claims 1 and 11 remain rejected as being unpatentable over Morishima in view of Katoh et al.

The dependent claims are argued as further limiting rejected independent claims. In response to such arguments, see the above comments regarding claims 1 and 11 *(Amendment, Pages 10-11)*.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-2, 4-9, 11-12, and 14-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishima *(EP 0795845)* in view of Katoh et al *(U.S. Patent: 4,719,833)*.

With respect to **Claims 1 and 11**, Morishima discloses:

Sound generating device for a mobile terminal of a wireless telecommunication system, with:

Memory means (5) for storing sounds *(musical note data stored in a memory, Col. 4, Lines 27-47)*,

Selecting means (3) for selecting a sound and a pitch for said sound to be generated *(user ability to compose a melody, Col. 1, Lines 33-36, utilizing the scale map of Fig. 3, containing note and tone or pitch data; Col. 4, Line 27- Col. 5, Line 34)*,

Calculating means (6) for calculating, on the basis of a preset calculation rule, a single sound table from the samples of the waveform of a selected sound *(preliminary formulation of a scale map containing combined tone and note information, Col. 4, 27-39)*,

Reading means (8) for reading out a part of the samples from said calculated sound table depending on said selected pitch for said sound *(CPU for processing note and tone data for melody production based upon information read from the scale map, Col. 7, Lines 45-53; and Fig. 3)*, and

Output means (2) for outputting a sound on the basis of said part of samples read out from said reading means *(generation of a musical note with tone or pitch data, Col. 7, Lines 53-56, using a loudspeaker, Fig. 2, Element 11; Col. 4, Lines 27-47)*.

Morishima does not specifically suggest sound waveforms that are created by digitally sampling a frequency distribution with a predetermined number and the calculation for altering the pitch of waveform samples, wherein the pitch is altered according to a number of read out samples *(i.e., calculated additional samples between adjacent samples of the waveform for descending octaves or skipped samples for ascending octaves)*. Katoh, however, discloses the concept of altering the pitch of all of the notes in a reference octave by performing sample skipping for ascending octaves and interpolation to calculate additional samples for descending octaves *(interpolation and sample skipping, Col. 14, Line 41- Col. 15, Line 20; and reference octave, Col. 9, Lines 1-60)*. Katoh also recites that note sounds are in the form of digitally sampled frequency distribution waveforms *(waveshapes, Col. 2, Lines 3-6; Fig. 10; and reference octave waveshapes, Col. 9, Lines 1-60; and Col. 14, Lines 40-50)*.

Morishima and Katoh are analogous art because they are from a similar field of endeavor in sound generation devices. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Morishima with the octave shifting means taught by Katoh in order to provide a note generation means that easily generates a note range octave shift through a well-known synchronized interpolation process *(Katoh, Col. 4, Lines 15-28; Col. 4, Lines 51-54; and Col. 20, Lines 11-18)*.

With respect to **Claims 2 and 12**, Katoh further teaches a one waveshape period sample stored in a tone generator *(Col. 9, Lines 1-6; and Col. 17, Lines 23-28)*.

With respect to **Claims 4 and 14**, Katoh discloses the interpolation process used for calculating additional samples for descending octaves, as applied to Claims 1 and 11.

With respect to **Claims 5 and 15**, Katoh discloses that the number of samples calculated through interpolation depends on a selected octave *(Col. 15, Lines 1-20)*.

With respect to **Claims 7-9 and 17-19**, Katoh discloses the process of skipping an integer number of waveform samples for ascending octaves *(Col. 14, Lines 41-68)*.

5. **Claims 3 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishima *(EP 0795845)* in view of Katoh et al *(U.S. Patent: 4,719,833)*, and further in view of Malah *("Cepstral Residual Vocoder for Improved Quality Speech Transmission at 4.8 kbps," 1982) (in support of official notice, see section 4)*.

With respect to **Claim 3 and 13**, Morishima in view of Katoh teaches the ring tone generation system utilizing a scale map containing pitch and note data, as applied to Claims 1 and 11. Morishima in view of Katoh does not specifically suggest that each note waveform consists of 51 samples, however, Malah teaches such a 51 bit (sample) audio signal *(Page 624)*.

Morishima, Katoh, and Malah are analogous art because they are from a similar field of endeavor in sound generation devices. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Morishima in view of Katoh with the 51 bit audio signal taught by Malah in order to achieve audio data of a sufficient quality capable of being implemented with well-known and readily available hardware *(Malah, Pages 622 and 624)*.

6. **Claims 10 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishima *(EP 0795845)* in view of Katoh et al *(U.S. Patent: 4,719,833)*, and further in view of

Dunlap et al *(U.S. Patent: 5,748,534) (in support of official notice, see section 4 from the OA from 7/7/2006).*

With respect to **Claims 10 and 20**, Morishima in view of Katoh teaches the ring tone generation system utilizing a scale map containing tone and note data and featuring reading means for reading out a sound signal, as applied to Claims 7 and 17. Morishima in view of Katoh does not specifically suggest a read-out sampling rate of 8kHz, however, Dunlap teaches such a read out sampling rate *(Col. 6, Lines 5-40).*

Morishima, Katoh, and Dunlap are analogous art because they are from a similar field of endeavor in sound generation devices. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Morishima in view of Katoh with the read-out sampling rate of 8kHz taught by Dunlap in order to implement a well-known voice playback rate that provides adequate sound quality *(Col. 6, Lines 5-40).*

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Kamiya *(U.S. Patent: 6,137,046)*- discloses a musical tone generator utilizing waveform data that skips samples to raise an octave and performs sample interpolation (or duplication) to lower a waveform octave *(see especially- Col. 8, Lines 40-65; Col. 12, Line 56- Col. 13, Line 19; and Fig. 4)*.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
4/17/2007

PATRICK N. EDOUARD
SUPERVISORY PATENT EXAMINER